GENERAL SERVICES ADMINISTRATION
WASHINGTON, DC 20405

PBS P 3440.5
August 24, 1981

GSA ORDER

SUBJECT: Project Estimating Requirements

1. Purpose. This order issues and transmits a new HB, Project Estimating Requirements.

2. Cancellation. PBS P 3440.1A is canceled.

3. Background. This HB establishes the quality and level of estimating services to be provided during the design phase of a project. When estimating for a project that is contracted through the design architect-engineer (A-E) or is contracted for separately with a professional services cost consultant, this HB defines the deliverables expected and their schedule.

4. Forms. This order provides for the use of new GSA Form 3474, Project Cost Comparison Summary; GSA Form 3473, Project Cost Summary (Level 3); and GSA Form 3472, GSA Cost Data. An initial distribution of these forms will be made to Central Office and all regional offices. Additional supplies should be obtained in the usual manner.

JOHN F. GALUARDI
Acting Commissioner
Public Buildings Service

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CHAPTER 1. INTRODUCTION

1. Applicability. The instructions contained in this handbook shall be incorporated by reference in the contracts of architects-engineers (A-E's) who perform cost management services, either by separate contract or as part of an overall design. The provisions of this handbook are applicable to Public Buildings Service (PBS), Office of Design and Construction and Office of Contracts organizational elements. These guides and procedures shall be followed by all estimators, both A-E and GSA, in the discharge of their professional responsibilities.

2. Scope. This handbook provides instructions for the negotiation and administration of A-E contracts with regard to oversight of development of the A-E's construction estimates and cost control requirements. This handbook supersedes the technical requirements for project cost estimating and cost control incorporated in the HB, Procurement and Administration of Design and Construction, Volume 1, Architect-Engineer, Construction manager, and Related Contracts (PBS P 3420.1).

3. Policies. In the design of new public buildings and in the repair and alteration of existing buildings, the A-E will ensure that the choice of design alternatives and the selection of construction materials and equipment will be evaluated from the standpoint of life cycle cost effectiveness, need for expenditure, and conformance with the National Energy Conservation Policy Act.

4. Performance standards for estimates. Each required estimate submittal must meet the following standards:

a. Balance. Among the various disciplines and buildings systems which make up the project and its design, there must be a proportional estimating effort submitted for each discipline, in approximate relationship to the total cost.

b. Completeness. For the estimate to be acceptable, it must include all elements of proposed project work, with all modifications, regardless of the stage of design.

c. Accuracy. The hallmark of a quality estimate is accuracy, and without this element, it loses its credibility. Lump sum amounts shall be held to an absolute minimum. The level of cost detail is to be appropriate to the design phase of the project. Generally, the level of detail will be indicated in this handbook by reference to the appropriate level of the UNIFORMAT code of accounts. (See appendix 1-A.)

5. Independent preparation. Each estimate submitted for a project must be prepared independent of the design team.

a. They shall be prepared under the direct supervision of a professional cost estimator whose full time or primary duty is that of estimating.

b. Estimates shall reflect what is shown on the drawings and specifications and the estimators work shall be influenced by the design team only to the extent that the drawings and specifications are modified.

6. Administrative penalties. The GSA Administrative Manual, (ch. 3-112, OAD P 5410.1), provides for penalties for GSA estimators and other employees relating to:

a. Willful preparation of an inaccurate Government estimate resulting in the acceptance of a given bid/price proposal from a contractor thereby causing damage or financial loss to the Government. An example of where this might occur is:

(1) An estimate is artificially juggled or modified to release a project for bid under the guise of being within available funds only to find out after receipt of bids that the project is over budget. The delay, redesign, readvertising, or negotiation with a bidder could represent a financial loss.

b. Negligently preparing an inaccurate Government estimate with the same result as above. Examples of where this might occur are:

(1) The UNIFORMAT code of accounts is not used and a major system is inadvertently omitted from the total or not figured at all; or

(2) The major materials shown in the estimate do not match those on the contract documents such as pricing a limestone exterior wall in the estimate when the drawings clearly show granite.

c. Negligent acceptance of incomplete services or payment for work not performed or not received. Examples of where this might occur are:

(1) An A-E is permitted to deviate from the estimating performance standards shown above in ch. 1-4; or

(2) An A-E does not perform the work specified in this handbook in a timely fashion so as to be useful to the Government in cost control of the project.

7. Requirements for phased projects. A project is phased when it is divided into more than one construction contract such as a contract for site preparation and foundations, and another contract for the finished structure. For phased projects the estimating requirements described in the subsequent chapters should be modified as follows:

a. Ch. 3, Concept Submittal. One submittal is required for the whole project prior to phasing.

b. Ch. 4, Tentative Submittal. A separate back-up cost estimate and GSA Form 3473 (see fig. 3-5) shall be submitted for each proposed phase. The estimates for each phase shall be summarized on one GSA Form 3474 (see fig. 2-2).

c. Ch. 5, Final Submittal. A separate fill back-up estimate and GSA Form 3473 submittal shall be made for each phased contract to be advertised. In addition, GSA Form 3474 shall be submitted with the last phase package.

d. Ch. 6, Post Construction Analysis. Each phased contract award is to be analyzed separately. One GSA Form 3472 (see fig. 6-5) shall be submitted after contract award of the last phase.

8. Requirements for multistructure projects. A multistructure project is one project that includes more than one separate structure. For example, the project may include a parking garage separate from the office building. When this occurs:

a. Separate estimates and submittals are to be prepared for each structure.

b. Site construction costs should be carefully associated between the estimates for each structure involved.

c. GSA Form 3474 shall be prepared for each separate structure and another GSA Form 3474 prepared to show the composite project.

9. Extent of estimating service. Unless otherwise specified or directed, the extent of estimating service outlined in subsequent chapters of this handbook shall be governed by the project size as follows:

a. Projects below $100,000 shall have only the estimating services outlined in chapter 5.

b. Projects between $100,000 and $500,000 shall have only the estimating services outlined in chapters 4 and 5.

c. Projects in excess of $500,000 shall have the work outlined in chapters 3, 4, 5, and 6 performed. Note that the market survey outlined in chapter 4 applies only to projects in excess of $5 million.

Appendix 1-A. UNIFORMAT Code of Accounts

NOTE: This appendix shows UNIFORMAT levels 2 through 5. Level 6, which is not shown, would be a further breakdown of the level 5 item by types, sizes, material description, and individual quantities of labor and material.

For example, level 5, 08111 Cold Water Service, at level 6 detail would show a breakdown of:

... type of pipe, by diameter and lineal feet

... list of fittings

... type of valves, by size and number

... type of insulation, by diameter and lineal feet

... etc.

UNIFORMAT ELEMENT/ITEM

01 Foundations

011 Standard Foundations

0011 Wall Foundations
01111 Wall Footings
01112 Foundation Walls & Pilasters
01113 Excavating & Backfilling

0112 Column Foundations & Pile Caps
01121 Column Footings
01122 Pile Caps
01123 Column Piers & Base Plates
01124 Excavating & Backfilling

012 Special Foundation Conditions

0121 Pile Foundations
01211 Mobilization/Demobilization
01212 Pile Tests
01213 Piles

0122 Caissons
01221 Open Caissons
01222 Caisson Accessories
01223 Special Caissons

0123 Underpinning
01231 Temporary Shoring to Structure
01232 Excavating
01233 Sheeting & Shoring to Excavation
01234 Backfilling
01235 Concreting
01236 Formwork
01237 Steel Bar Reinforcing
01238 Cutoff Projecting Footings
01239 Grouting & Dry Packing

0124 Dewatering
01241 Pumping
01242 Well-Point
01243 Gravity Drainage

0125 Raft Foundations
01251 Slab Construction
01252 Base Courses
01253 Moisture Protection

0126 Other Special Foundation Conditions
01261 Removal of Old Foundations

01262 Rock Grouting
01263 Tunneling
01264 Shoring Existing Buildings

02 Substructure

021 Slab on Grade

0211 Standard Slab on Grade
02111 Slab Construction
02112 Base Courses
02113 Moisture Protection

0212 Structural Slab on Grade
02121 Slab Construction
02122 Grade Beams
02123 Base Courses
02124 Moisture Protection

0213 Inclined Slab on Grade
02131 Ramps
02132 Inclined Floor Slabs
02133 Stepped Slabs on Grade
02134 Steps

0214 Trenches, Pits, & Bases
02141 Trenches & Depression in Slabs
02142 Pits
02143 Equipment & Machine Bases

0215 Foundation Drainage
02151 Perimeter Drains
02152 Under Slab Drains

022 Basement Excavation

0221 Excavation for Basements
02211 Excavating
02212 Waste Material Disposal

0222 Structure Backfill & Compaction
02221 Structure Backfill with Excavated Material
02222 Borrow Backfill

0223 Shoring
02231 Sheeting and Shoring
02232 Tiebacks & Anchors
02233 Slurry Walls

023 Basement Walls

0231 Basement Wall Construction
02311 Basement Walls
02312 Pilasters
02313 Expansion & Construction Joints

0232 Moisture Protection
02321 Dampproofing
02322 Waterproofing

0233 Basement Wall Insulation

03 Superstructure

031 Floor Construction

0311 Suspended Basement Floor Construction
03111 Structural Frame
03112 Interior Structural Walls
03113 Floor Slabs & Decks
03114 Inclined & Stepped Floors
03115 Expansion & Contraction Joints

0312 Upper Floors Construction
03121 Structural Frame
03122 Interior Structural Walls
03123 Floor Slabs & Decks
03124 Inclined & Stepped Floors
03125 Expansion & Contraction Joints

0313 Balcony Construction
03131 Supported Balconies
03132 Cantilevered Balconies

0314 Ramps
03141 Pedestrian Ramps
03142 Vehicle Ramps

0315 Special Floor Construction
03151 Catwalks
03152 Space Frames
03153 Cable-Supported Floor Systems

032 Roof Construction

0321 Flat Roof Construction
03211 Structural Frame
03212 Interior Structural Walls

03213 Roof Slabs & Decks
03214 Expansion & Contraction Joints

0322 Pitched Roof Construction
03221 Frame & Trusses
03222 Roof Decking & Sheathing

0323 Canopies
03231 Supported Canopies
03232 Cantilevered Canopies

0324 Special Roof Systems
03241 Concrete Shells & Domes
03242 Hyperbolic Parabaloid Roofs
03243 Space Frames
03244 Barrel Vault Roofs
03245 Saw Tooth Roofs
03246 Cable-Supported Roofs
03247 Air-Supported Structures

033 Stair Construction

0331 Stair Structure
03311 Regular Stairs
03312 Curved Stairs
03313 Spiral Stairs
03314 Exterior Fire Escape Stairs
03315 Steps in Suspended Slabs

04 Exterior Closure

041 Exterior Walls

0411 Exterior Wall Construction
04111 Exterior Skin
04112 Insulation & Vapor Barriers
04113 Interior Skin
04114 Parapets
04115 Dampproof Courses
04116 Finish to Exposed Structure
04117 Expansion Joints
04118 Cornerstones

0412 Exterior Louvers & Screens
04121 Exterior Louvers
04122 Decorative Grilles & Screens
04123 Exterior Vents

0413 Sun Control Devices (Exterior)

04131 Projecting Sun Screens
04132 Awnings
04133 Exterior Shutters & Blinds

0414 Balcony Walls & Handrails
04141 Balcony Walls
04142 Balcony Railings
04143 Balcony Handrails
04144 Balcony Dividing Walls

0415 Exterior Soffits
04151 Building Soffits
04152 Balcony Soffits
04153 Canopy Soffits

042 Exterior Doors & Windows

0421 Windows
04211 Window Units & Hardware
04212 Glazing
04213 Wall Opening Elements
04214 Protective Window Elements
04215 Exterior Window Painting & Staining

0422 Curtain Walls
04221 Curtain Walls-Grid Systems
04222 Curtain Walls-Panel Systems

0423 Exterior Doors
04231 Glazed Doors & Entrances
04232 Solid Exterior Doors
04233 Revolving Doors
04234 Overhead Doors
04235 Special Doors & Entrances

0424 Storefronts
04241 Framing
04242 Panels & Bulkheads
04243 Doors & Hardware
04244 Glazing
04245 Rolling Grilles & Folding Closures
04246 Storefront Awnings
04247 Caulking

05 Roofing

No Level 3

0501 Roof Coverings

05011 Membrane Roofing
05012 Shingles & Roofing Tile
05013 Preformed Roofing
05014 Sheet Metal Roofing
05015 Expansion Joints & Covers

0502 Traffic Toppings & Paving Membrane
05021 Traffic Toppings
05022 Waterproof Membranes Below Paving
05023 Slatted Roof Decks & Walkways

0503 Roof Insulation & Fill
05031 Roof Vapor Barriers
05032 Roof & Deck Insulation
05033 Roof Fill

0504 Flashings & Trim
05041 Flashings
05042 Gravel Stops
05043 Fascia & Eaves
05044 Gutters & Downspouts
05045 Miscellaneous Roofing Specialties

0505 Roof Openings
05051 Glazed Roof Openings
05052 Hatches
05053 Gravity Roof Ventilators

Interior Construction

061 Partitions

0611 Fixed Partitions
06111 Solid Partitions
06112 Glazed Partitions
06113 Mesh Partitions

0612 Demountable Partitions
06121 Full Height Demountable Partitions
06122 Bank Height Demountable Partitions

0613 Retractable Partitions
06131 Accordion Folding Partitions
06132 Folding Leaf Partitions
06133 Coiling Partitions

0614 Compartments & Cubicles
06141 Toilet Partitions
06142 Shower & Dressing Compartments

06143 Hospital Cubicles

0615 Interior Balustrades & Screens
06151 Stair Balustrades
06152 Balustrades At Floor Openings
06153 Interior Grilles & Decorative Screens

0616 Interior Doors & Frames
06161 Interior Doors
06162 Interior Door Frames
06163 Interior Door Hardware
06164 Interior Door Wall Opening Element
06165 Interior Door Sidelights & Transoms
06166 Interior Door Painting & Staining
06167 Hatches & Access Doors

0617 Interior Storefronts
06171 Framing
06172 Panels & Bulkheads
06173 Doors & Hardware
06174 Glazing
06175 Rolling Grilles & Folding Closures

062 Interior Finishes

0621 Wall Finishes
06211 Wall Finishes to Inside Exterior Wall
06212 Wall Finishes to Interior Walls
06213 Column Finishes

0622 Flooring

06221 Screens & Toppings
06222 Floor Finishes
06223 Bases, Curbs & Trim
06224 Stair Finish
06225 Access Flooring (Pedestal Floors)

0623 Ceiling Finishes
06231 Ceiling Finishes Applied to Structure
06232 Suspended Ceilings
06233 Special Ceilings
06234 Stair Soffits
06235 Expansion Joint Covers

063 Specialties

0631 General Specialties

06311 Chalk & Tackboards
06312 Identifying Devices
06313 Lockers
06314 Toilet & Bath Accessories
06315 Storage Shelving
06316 Miscellaneous Metalwork
06317 Miscellaneous Specialties

0632 Built-in Fittings
06321 Counters & Vanities
06322 Kitchen Cabinets
06323 Closets
06324 Miscellaneous Built-in Cabinetwork

07 Conveying Systems
No Level 3

0701 Elevators
07011 Passenger Elevators
07012 Freight Elevators

0702 Moving Stairs & Walks
07021 Escalators
07022 Moving Walks

0703 Dumbwaiters
07031 Hand-Operated Dumbwaiters
07032 Electric-Operated Dumbwaiters

0704 Pneumatic Tube Systems
07041 Pneumatic Message Tube Systems
07042 Pneumatic Trash Tube Systems
07043 Pneumatic Linen Tube Systems

0705 Other Conveying Systems
07051 Lifts
07052 Hoists & Cranes
07053 Conveyors
07054 Chutes
07055 Turntables

0706 General Construction Items

07061 Hoistway Beams
07062 Hydraulic Elevator Shaft Drilling
07063 Miscellaneous Metals
07064 Lintels to Openings
07065 Concrete Work
07066 Masonry Work

07067 Painting

08 Mechanical

081 Plumbing

0811 Domestic Water Supply System
08111 Cold Water Service
08112 Hot Water Service
08113 Domestic Water Supply Equipment

0812 Sanitary Waste & Vent System

08121 Waste Piping & Fittings
08122 Vent Piping & Fittings
08123 Floor Drains
08124 Sanitary Waste Equipment
08125 Thermal Pipe Insulation

0813 Rainwater Drainage System
08131 Pipe & Fittings
08132 Roof Drains
08133 Rainwater Drainage Equipment
08134 Thermal Pipe Insulation

0814 Plumbing Fixtures
08141 Bath Tubs
08142 Bidets
08143 Kitchen Sinks
08144 Laundry Sinks & Trays
08145 Lavatories
08146 Mop Sinks
08147 Service Sinks
08148 Showers
08149 Urinals
081410 Water Closets
081411 Wash Fountains
081412 Drinking Fountains & Coolers

082 HVAC

0821 Energy Supply
08211 Oil Supply System
08212 Gas Supply System
08213 Coal Supply System
08214 Steam Supply System
08215 Solar Energy Supply System
08216 Wind Energy Supply System

0822 Heat Generating System
08221 Steam Boilers
08222 Hot Water Boilers
08223 Furnaces
08224 Boiler Room Piping & Specialties
08225 Auxiliary Equipment
08226 Equipment Thermal Insulation

0823 Cooling Generating Systems
08231 Chilled Water Systems
08232 Direct Expansion Systems

0824 Distribution Systems
08241 Air Distribution
08242 Exhaust Ventilation Systems
08243 Steam Distribution
08244 Hot & Chilled Water Distribution
08245 Change Over Distribution Systems
08246 Glycol Heating Distribution System

0825 Terminal& Package Units
08251 Terminal Units
08252 Packaged Units

0826 Controls & Instrumentation
08261 Air-Conditioning Systems
08262 Energy Supply System
08263 Heat-Generating System
08264 Cooling-Generating System
08265 Special Mechanical Systems
08266 Instrument Panels
08267 Instrument Air Compressor
08268 Gas Purging System

0827 Systems Testing & Balancing
08271 Water Side Testing & Balancing
08272 Air Side Testing & Balancing

083 Fire Protection

0831 Water Supply (Fire Protection)
08311 Water Connection
08312 Pipe & Fittings
08313 Valves

0832 Sprinklers
08321 Wet Sprinkler System
08322 Dry Sprinkler System

0833 Standpipe Systems
08331 Standpipe Equipment
08332 Fire Hose Equipment
08333 Pumping Equipment

0834 Fire Extinguishers
08341 Hand-Held Fire Extinguishers
08342 Wheeled Cart Fire Extinguishers
08343 Fire Extinguisher Cabinets

084 Special Mechanical Systems

0841 Special Plumbing Systems
08411 Special Piping Systems
08412 Acid Waste Systems
08413 Interceptors
08414 Pool Equipment
08415 Special Plumbing Fixtures

0842 Special Fire Protection Systems
08421 Carbon Dioxide Extinguishing Equipment
08422 Foam-Generating Equipment
08423 Halon System Equipment
08424 Hood & Duct Fire Protection

0843 Miscellaneous Special Systems & Devices
08431 Special Cooling Systems & Devices
08432 Process Heating
08433 Storage Cells & Devices
08434 Dust & Fume Collectors
08435 Deodorizing Equipment
08436 Carbon Monoxide Equipment
08437 Sound Attenuating Equipment
08438 Special Waste Treatment Devices

09 Electrical

91 Service & Distribution

0911 High Tension Service & Distribution
09111 High Tension System Monitoring
09112 High Tension System Equipment
09113 High Tension System Distribution

0912 Low Tension Service & Distribution
09121 Low Tension System Monitoring
09122 Low Tension System Equipment
09123 Low Tension System Distribution

92 Lighting and Power

0921 Branch Wiring
09211 Wiring Circuits
09212 Branch Wiring Devices

0922 Lighting Equipment
09221 Fluorescent Interior Lighting Fixtures
09222 Incandescent Interior Lighting Fixtures
09223 Other Lighting Fixtures & Equipment

093 Special Electrical Systems

0931 Communications & Alarm Systems
09311 Public Address Systems
09312 Central Music Systems
09313 Intercommunication Systems
09314 Paging Systems
09315 Utility Telephone Systems
09316 Nurses' Call System
09317 In-Out Registers
09318 Bell Systems
09319 Television Systems
093110 Clock & Program Systems
093112 Burglar Alarm Systems
093113 Other Systems

0932 Grounding Systems
09321 Lightning Protection
09322 Building Ground Systems
09323 Special Grounding Systems

0933 Emergency Light & Power
09331 Emergency Generator Systems
09332 Emergency Battery Systems
09333 Other Emergency Light & Power Systems

0934 Electric Heating

09341 Heating Equipment
09342 Control Devices
09343 Branch Wiring
09344 Other Heating Systems

0935 Floor Raceway Systems
09351 Standard Underfloor Duct Systems
09352 Header (Feeder) Duct
09353 Industrial (square) Duct
09354 Trench Duct

09355 Wiring Devices & Accessories

0936 Other Special Systems & Devices
09361 Special Lighting Systems
09362 Special Protective Systems & Devices
09363 Special Electronic Controls

0937 General Construction Items
09371 Cuffing & Patching
09372 Trenching & Backfill
09373 Painting .
09374 Equipment Installation Items

11 Equipment

111 Foxed & Movable Equipment

1111 Built-in Maintenance Equipment
11111 Window Washing Equipment
11112 Vacuum Cleaning System

1112 Checkroom Equipment
11121 Manual Checkroom Equipment
11122 Automatic Storage & Retrieval Cheekroom Equipment

1113 Food Service Equipment
11131 Refrigeration Cases
11132 Insulated Rooms
11133 Storage Units
11134 Cooking Equipment
11135 Food Preparation Machines
11136 Food Serving Units
11137 Washing Units & Conveyors

1114 Vending Equipment
11141 Hot Drink Vending Unit
11142 Cold Drink Vending Unit
11143 Hot Food Vending Unit
11144 Cold Food Vending Unit
11145 Cigarette Vending Unit
11146 Condiment Unit & Counter
11147 Refuse Unit
11148 Coin Changer
11149 Microwave Oven
111410 Bases for Unit

1115 Waste Handling Equipment
11151 Waste Compactors
11152 Incinerators

11153 Waste Storage Containers
11154 Pulping Machines & Systems

1116 Loading Dock Equipment
11161 Dock Levellers
11162 Levelling Platforms
11163 Dock Bumpers
11164 Dock Seats & Shelters

1117 Parking Equipment
11171 Parking Bumpers & Guard Rails
11172 Parking Control Equipment

1118 Detention Equipment
11181 Cell & Corridor Construction
11182 Cell Accessories
11183 Courtroom Security Devices
11184 Detention Screens

1119 Postal Equipment
11191 Mail Boxes
11192 Post Office Equipment

11110 Other Specialized Equipment
111101 Darkroom Equipment
111102 Educational Equipment
111103 Athletic Equipment
111104 Laboratory Equipment
111105 Laundry Equipment
111106 Library Equipment
111107 Medical Equipment
111108 Mortuary Equipment
111109 Residential Equipment
111110 Auditorium & Stage Equipment
111111 Miscellaneous Specialized Equipment

112 Furnishings

1121 Artwork
11211 Bases & General Contract Work for Artwork & Sculpture

1122 Window Treatment
11221 Blinds
11222 Interior Shutters
11223 Roll Shades
11224 Curtains & Drapes

1123 Seating
11231 Auditorium Seating

11232 Bleachers

113 Special Construction

1131 Vaults
11311 Steel Vault Linings
11312 Vault Doors & Frames
11313 Vault Ventilation
11314 Prefabricated Vaults

1132 Interior Swimming Pools
11321 Prefabricated Swimming Pools
11322 Swimming Pool Equipment

1133 Modular Prefabricated Assemblies

1134 Special Purpose Rooms
11341 Audiometric Room
11342 Clean Room
11343 Hyperbaric Room
11344 Sauna
11345 Fallout Shelters (Interior)

1135 Other Special Construction
11351 Radiation Protection
11352 Radio Frequency Shielding

12 Site Work

121 Site Preparation

1211 Clearing
12111 Clearing & Grubbing
12112 Tree Removal
12113 Selective Thinning
12114 Tree Pruning

1212 Demolition
12121 Building Demolition
12122 Site Demolition
12123 Relocations

1213 Site Earthwork
12131 Site Grading
12132 Site Excavating
12133 Borrow Fill
12134 Soil Stabilization
12135 Soil Treatment
12136 Site Dewatering

12137 Site Shoring

122 Site Improvements

1221 Parking Lots
12211 Parking Lot Paving & Surfacing
12212 Curbs, Rails & Barriers
12213 Parking Booths & Equipment

1222 Roads, Walks, & Terraces
12221 Roads
12222 Walks
12223 Terraces & Plazas

1223 Site Development
12231 Fences & Gates
12232 Walls
12233 Signs
12234 Site Furnishings
12235 Fountains, Pools & Watercourses
12236 Playing Field & Sports Facilities
12237 Flagpoles
12238 Miscellaneous Structures

1224 Landscaping
12241 Fine Grading & Soil Preparation
12242 Top Soil & Planting Beds
12243 Seeding & Sodding
12244 Planting
12245 Planters
12246 Special Landscape Feature

123 Site Utilities

1231 Water Supply & Distribution
12311 Potable Water Systems
12312 Fire Protection Systems
12313 Process Water Systems
12314 Irrigation Systems

1232 Drainage & Sewerage Systems
12321 Storm Drainage
12322 Sanitary Sewer
12323 Process & Acid Waste Systems
12324 Combined Drainage & Sewerage Systems

1233 Heating & Cooling Systems
12331 Heating System
12332 Cooling Systems

1234 Gas Distribution Systems
12341 Natural Gas Systems
12342 Other Gas Systems

1235 Electric Distribution & Lighting Systems
12351 Overhead Power Services
12352 Underground Services
12353 Exterior Yard & Road Lighting
12354 Exterior Flood Lighting
12355 Exterior Lighting Controls
12356 Exterior Sign Lighting

1236 Snow Melting Systems
12361 Piped Snow Melting Systems
12362 Electrical Snow Melting Systems

1237 Service Tunnels
12371 Excavating & Backfilling
12372 Constructed Service Tunnel
12373 Prefabricated Service Tunnels
12374 Moisture Protection
12375 Insulation
12376 Miscellaneous Items

124 Off-Site Work

1241 Railroad Work

1242 Marine Work

1243 Tunneling

1244 Other Off-Site Work

10 General Conditions & Profit

1001 Mobilization & Initial Expenses
10011 Mobilization
10012 Permits & Fees
10013 Insurance & Bonds

1002 Site Overhead
10021 Site Supervisory & Emergency Staff
10022 Labor On-Costs
10023 Sales & Use Taxes
10024 Construction Equipment
10025 Site Office Operating Costs
10026 Temporary Facilities

10027 Site Protection Security
10028 Cleanup
10029 Inspection & Testing
100210 Winter Conditions
100211 Miscellaneous Site Overheads

1003 Demobilization
10031 Temporary Enclosures (Removal)
10032 Temporary Buildings (Removal)
10033 Temporary Services (Removal)
10034 Equipment Demobilization
10035 Final Clean-up
10036 Repairing Sidewalks & Streets
10037 Punch List & Warranties
10038 Maintenance Manuals & As-built Drawings
10039 Staff Relocation Costs
100310 Opening Ceremonies

1004 Main Office Expense & Profit
10041 Main Office Expense
10042 Profit

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Adjusting for escalation.....	6

Figure 2-2. Sample budget issuance

CHAPTER 2. CONSTRUCTION COST ESTIMATE BASIS FOR A-E PROPOSAL & NEGOTIATION

1. Contract documents and program requirements provided A-E. Following notification of the selected A-E, contract documents and program requirements will be sent to the A-E as provided for in the GSA HB, Instructions to Con-tract Architects (PBS P 3410.1C). This material is for the use of the A-E in preparing his proposal and for negotiation preparation.

2. Estimate basis.

a. Estimate format. The A-E will base the fee for cost estimating and control services on using the GSA UNIFORMAT estimating code of accounts. (See appendix 1-A.). This is a format to facilitate tracking building cost items throughout the life cycle of the building design and construction. All cost data on the

UNIFORMAT can be summarized into the same 12-element summary for cost control purposes. The GSA construction budget cost estimate which is provided the A-E prior to negotiation will be UNIFORMAT level 2 and issued on GSA Form 3474, Project Cost Comparison Summary. Figure 2-2 illustrates an example of the content of the form when issued.

b. Space requirements. The A-E will be provided GSA Form 261, Space Planning Directive. This document shall list in detail each type and amount of occupiable space required and a summary of all required occupiable space. The A-E will also be provided with the GSA estimated building gross area used as a budget basis to meet the occupiable area requirements. The estimated gross area provided by GSA is not considered a target gross area, but an upper limit. Where a predesign program exists, it will be provided as a basis for project scope.

c. Project description. The A-E will be provided with the project description including available site data, technical standards, and criteria. An informal conference will usually be held immediately before the negotiation so that the A-E will have a thorough understanding of the project scope and requirements, including technical standards, criteria aesthetics and policies, and energy conservation, environmental and ecological considerations as applied to the particular project. On certain alteration projects, A-E's will be invited to meet with PBS personnel at the project site to refine program requirements prior to making a proposal. It is of utmost importance that the A-E has a thorough understanding of the project scope and cost requirements.

d. Estimate data basis. The cost estimate provided by GSA at this stage will be based on an estimated construction cost of a construction contract to be awarded at a date in the future (ECCA) in accordance with the proposed design and construction schedule determined at the date of the A-E contract negotiation. When affirmed by the A-E, this figure will be used to establish the A-E's fixed limit of construction cost. Provision will be made to adjust this limit only if the contracting officer agrees to extend the schedule through no fault of the A-E or the A-E receives direction to modify project scope and such modification is determined by the contracting officer to have an impact on the scheduled design time.

3. Affirmation of A-E responsibility. The A-E will be requested to confirm that the design of the project will be within the fixed limit of construction cost (ECCA), while providing the occupiable space without exceeding the maximum authorized gross area. The A-E's attention will be drawn to GSA's construction cost limitation revision clause. (See GSA Form 1495.) This provides that if the Government estimated construction contract award amount, based on the design and construction schedule at the time of negotiation, adjusted by Construction Cost Indices (if applicable), is exceeded by 5 percent in the lowest acceptable bid, the A-E shall be required, at the A-E's expense, to revise the drawings and specifications to reduce the cost to an amount within this specified limit. (See GSA Form 1495 for the method to be used in adjusting the Government estimate, if applicable.)

4. A-E cost management capability. The A-E will be required to submit cost estimates at each stage of the design submissions: concepts, tentatives and final working drawings. These estimates are to be prepared by qualified professional estimators. The estimating and cost control may be performed by consultants with proven experience and whose primary function is cost estimating and cost management of building construction projects. Preference in evaluating qualifications will be given to certified cost engineers for estimating, and certified value specialists for cost control work.

5. Monitoring design and cost targets. At each design stage, the A-E will be required to compute the occupiable and gross areas, and ascertain that the space requirements, listed in GSA Form 261,

heretofore mentioned, are being satisfied. A cost estimate, at each stage of design, must be prepared. This estimated construction cost award amount must be closely monitored against the GSA budget estimate as affirmed under ch. 2-3.

6. Adjusting for escalation. The A-E shall be responsible for forecasting escalation between the anticipated date of contract award and the current date of design. The A-E shall control the cost of the project design in such a manner that, when the ECCA budget is reduced by the forecasted amount of escalation, the residual budget amount represents the current value of the project design. Thus, as design draws nearer to 100 percent completion, the forecasted escalation will approach zero and the final estimate of the project design will match the ECCA budget.

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CHAPTER 3. CONCEPT STAGE ESTIMATE SUBMISSION

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Cost saving ideas	7
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Figure 3-5. Sample level 3 summary

CHAPTER 3. CONCEPT STAGE ESTIMATE SUBMISSION

1. Scope. This chapter describes the design work to be provided the A-E's estimator as well as the estimating products to be prepared and analyzed.

2. Space analysis. The A-E will provide the estimator with a space analysis listing the program occupiable areas provided for in the concept design, the support areas, and the gross areas. The A-E should strive for high space efficiency which may result in a building with less gross area than the estimated maximum gross area provided by GSA as the basis for the budget on GSA Form 3474.

3. Design analysis. The A-E will provide the estimator with sketches of all floor plans, elevations, sections, and perspective views in sufficient detail to provide a realistic parametric cost analysis. In addition, the A-E will provide:

a. A statement on the conceptual approach for each major building system including an itemized listing of the anticipated type and sizing of all major equipment and block loads for structural, mechanical and electrical systems;

b. Quality levels of major materials and systems to be used including special code requirements for fire protection, electrical, plumbing, and structural.

4. Site analysis. The A-E shall obtain city-county maps and U.S. Geological Survey maps to aid in site analysis. Siting and orientation of the building shall be indicated, and the prepared site plan shown must

be complete enough to develop foundation assumptions and site work assumptions.

5. Concept cost estimates. Two estimates based on the A-E's project concept submittal and the above analysis shall be prepared and submitted. The first estimate shall be based on appropriate design/engineering parameters with associated element quantities (i.e.: air conditioning tonnage, foundation whole bay loads, exterior wall square footage, electrical load, sprinkler heads, fire alarm stations, etc.). The second estimate shall be based on estimated gross square foot cost.

a. Level of detail. The minimum level of estimating detail required for both estimates is UNIFORMAT level 3. Additional detail may be provided as back up to support one or more of the cost elements such as a listing of: "0684-Special Mechanical Systems."

b. Format. Back up estimating data may be in any format. Additional levels of estimating detail below level. 3 need not be identified by UNIFORMAT account numbers as long as the items of work are properly grouped by level 3 account numbers. Estimates shall be summarized and submitted on GSA Form 3473, Project Cost Summary (Level 3). (See fig. 3-5 .)

c. Pricing. All unit costs shall be current as of the date of estimating with an allowance for construction contract performance time and shall contain all appropriate mark-ups at the subcontract level. Escalation from the date of the estimate to the scheduled contract award date shall be included as an item at the end of the estimate. Similarly, a design contingency may be shown at the concept stage.

6. Comparison to GSA budget. The GSA Form 3474 provided during A-E contract negotiations (see ch. 2) shall be used to summarize the concept estimate and compare it to the GSA budget. It shall be compared by total cost and by each element at UNIFORMAT level 2. If the concept estimate exceeds the budget estimate, the A-E shall be required to propose cost saving ideas to bring the project within budget.

7. Cost saving ideas. The estimator shall make a list of proposed cost' saving ideas with an order of magnitude estimate of savings for each item.

a. The A-E shall comment on the list of cost savings and recommend acceptance or rejection with his rationale for such recommendations.

b. If the A-E recommends disapproval of the ideas of the estimator, the A-E is obligated to suggest alternate savings sufficient to provide a project within budget.

8. Submittal package. A special cost estimating package shall be bound together and submitted to the Government for the review by GSA estimating personnel. The following items shall be included in the package in the order listed below:

a. Cover sheet with project description.

b. GSA Form 3474;

c. GSA Form 3473;

d. Back-up cost estimates;

e. Cost saving recommendations;

f. Space analysis data;

g. Design analysis data; and

h. Site analysis data.

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CHAPTER 4. TENTATIVE STAGE ESTIMATE SUBMISSION

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Tentative cost estimates	3
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Comparison to GSA budget	5
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CHAPTER 4. TENTATIVE STAGE ESTIMATE SUBMISSION

1. Scope. This chapter describes the design work to be provided the A-E's estimator as well as the estimating products to be prepared and analyzed.

2. Design data.

a. The A-E will provide the estimator with specific statements regarding whether or not any changes to the following data submitted during concept estimating have occurred:

(1) Space analysis;

(2) Design analysis; and

(3) Site data.

b. The A-E will provide the estimator with all tentative stage design work including:

(1) Drawings;

(2) Outline specifications;

(3) Preliminary computations;

(4) Recommended project directive; and

(5) Intended quantities for items of work not yet shown in the tentative submittal should this occur.

3. Tentative cost estimates. Two estimates based on the A-E's project tentative stage submittal and the

above information shall be prepared and submitted. The first estimate shall be based on appropriate design/engineering parameters with associated element quantities. The second estimate shall be based on unit pricing of labor and material based on performance of a quantity survey to the level of detail stipulated.

a. Level of detail. For the first estimate, the estimator shall recalculate parameter quantities at UNIFORMAT level 3. For the second estimate, the estimator shall perform a quantity survey at UNIFORMAT level 5.

b. Format. Estimates shall be summarized and submitted on GSA Form 3473. Back-up estimating data and quantity survey information may be in any format and need not be identified by UNIFORMAT account numbers as long as the items of work are properly grouped by level 3 account numbers.

c. Pricing. All unit costs shall be current as of the date of estimating. Escalation from the date of the estimate to the scheduled contract award date shall be included as an item at the end of the estimate. Design contingency may be included at the end of the estimate but should be less than that included at the concept stage since the design is more complete.

4. Market survey. For every project anticipated to have a construction cost of approximately $5 million or more, a market survey shall be conducted. The survey should be conducted no later than 3 months prior to design completion to enable the A-E sufficient time to revise design, incorporate alternatives, change the construction schedule or whatever else might be necessary as a result of the survey.

a. Determine by site visit to the local market area:

(1) The availability of major materials to be in the project;

(2) The capability of local fabricators, precast yards, concrete plants, etc;

(3) The availability of labor crafts necessary for the project;

(4) The capacity of local contractors during the anticipated bidding/construction period;

(5) Special conditions that might influence bidding; and

(6) Local escalation experience.

b. Submit a written report to the contracting officer within 2 weeks of the market survey. As a minimum, the report shall include:

(1) Data regarding contacts:

(a) who was contacted;

(b) Where they are located (include distance from site).

(c) When they were contacted;

(d) Why they were contacted; and

(e) What information was obtained.

(2) A summary assessment with specific recommendations when appropriate.

5. Comparison to GSA budget. Similar to that specified in ch. 3 for the concept estimate, GSA Form 3474 shall be used to summarize the tentative estimate and compare it to the GSA budget. If the tentative estimate exceeds the budget estimate, the A-E shall be required to propose additional cost saving ideas to bring the project within budget.

6. Cost saving review. While performing the required estimating services, the estimator shall perform a review of the design work for potential cost savings.

a. The first part of the review shall be a report on what cost saving ideas were actually incorporated in the design as the result of recommendations made for the concept submittal, if any.

b. The second part of the review shall concentrate on suggesting additional cost saving ideas in at least an amount to bring the project 5 percent below budget if all ideas are approved. A specific portion of this effort shall be a design review of the structural, mechanical and electrical systems and computations to ensure that over design and/or higher cost is not caused by:

(1) Providing excessive spare capacity;

(2) Providing unnecessary redundant systems/components;

(3) Designing for unnecessary expansion;

(4) Splitting systems/loads;

(5) Not designing for a degree of risk in lieu of peak conditions;

(6) Adding unwarranted factors of safety in sizing equipment systems;

(7) Rounding off calculations only in the upward direction; and

(8) Selecting equipment/material sizes from manufacturer's catalogues only in the next size higher than that calculated.

c. Similar to the cost saving ideas provided under ch. 3 for the concept submittal, the A-E shall comment to GSA on all these cost saving ideas.

7. Submittal package. A special cost estimating package shall be bound together and submitted to the Government for review by GSA estimating personnel. The following items shall be included in the package in the order listed below:

a. Cover sheet with project description.

b. GSA Form 3474;

c. GSA Form 3473;

d. Back-up cost estimate; and

e. Cost savings review report.

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CHAPTER 5. FINAL WORKING DRAWING STAGE ESTIMATE SUBMISSION

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Final cost estimate	3
Comparison to GSA budget	4
Cost saving checklist	5
Amendment and bid alternate estimates	6
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Appendix 5-A. UCI system

CHAPTER 5. FINAL WORKING DRAWING STAGE ESTIMATE SUBMISSION

1. Scope. This chapter describes the estimating process and products to be prepared as a final submission preparatory to placing the construction project on the market for receipt of bids.

2. Design data.

a. The A-E will provide the estimator with specific statements regarding whether or not any changes have occurred since the tentative submittal regarding:

(1) Mechanical, electrical or structural system concepts and loads; and

(2) Space analysis.

b. The A-E will provide the estimator with final design work including 100 percent complete contract drawings and specifications.

3. Final cost estimate. The final estimate shall be prepared to reflect anticipated construction costs in accordance with the design and construction schedule established for the contract, including any amendments.

a. Level of detail. The estimate shall consist of a detailed quantity survey of labor and material at UNIFORMAT level 6.

b. Format. Two formats of the final estimate shall be provided.

(1) The first format shall be summarized and submitted on GSA Form 3473 with back-up data grouped by UNIFORMAT level 3 account as specified previously.

(2) The second format shall be summarized and submitted by construction trade in accordance with the Uniform Construction Index (UCI) or Construction Specifications Institute (CSI) MASTERFORMAT 16 section system. (See appendix 5-A.) This format shall be for the purpose of relating to the construction contractors bidding procedure for progress and payment schedules.

4. Comparison to GSA budget. Similar to that specified in ch. 4 for the tentative estimate, GSA Form 3474 shall be used to summarize the final estimate and compare it to the GSA budget. If the final estimate exceeds the budget estimate, the A-E shall be required to propose additional cost saving reductions or bid alternates sufficient to ensure receipt of bids within budget on the scheduled date.

5. Cost saving checklist. While performing the required detailed quantity survey and cost estimating service, the estimator shall maintain a checklist of all potential cost saving ideas that are discovered along with the drawing sheet number or specification page number where located. In addition, a summary of cost saving changes implemented from the tentative stage review shall be provided. All this shall be reviewed by the A-E and forwarded to the Government with an indicated course of action or recommendation.

6. Amendment and bid alternate estimates. Each contract amendment and/or bid alternate included in the contract documents for bidding purposes shall be estimated separately. The estimate shall be a level 6 labor and material quantity survey of work added to and/or deleted from the basic contract by the amendment or bid item. If there is no cost impact caused by an amendment or bid alternate, an affirmative statement to that effect is required.

7. Submittal package. A special cost estimating package shall be bound together and submitted to the Government for review by GSA estimating personnel. The following items shall be included in the package in the order listed below.

a. Cover sheet with project description;

b. GSA Form 3474;

c. GSA Form 3473;

d. Back-up cost estimate;

e. Bid alternate estimates;

f. Cost saving checklist; and

g. UCI format estimate.

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CHAPTER 6. POST AWARD CONSTRUCTION COST ANALYSIS

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Construction contract bid analysis..... 3
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Historical data submittal..... 5
Change order estimating..... 6

Figure 6-5. Cost data

CHAPTER 6. POST AWARD CONSTRUCTION COST ANALYSIS

1. Scope. This chapter describes the analysis to be performed and estimating products to be prepared after construction contract award.

2. Government furnished data. To perform the work required in this chapter, the Government will provide the following data:

a. The abstract of bids received for the procurement with an indication of the award amount and the offered bids by all contractors.

b. Any breakdown or verification of contractor or subcontractor prices obtained by the Government in the course of contract award.

c. The contractors approved schedule of prices to be used for progress payment purposes.

3. Construction contract bid analysis. After the construction contract is awarded, the A-E shall make an analysis of the bid cost utilizing all available cost data, including the contractor's breakdown of cost submitted as payment schedule for monthly progress payments for each trade or subcontract. The purpose of this analysis is to develop historical cost data for future project planning and budget estimating.

4. Revision of UNIFORMAT estimate. The A-E shall review the final cost estimate and make revisions so that it will conform with actual contract cost, to the extent possible. The total cost should agree with actual bid cost and each major element (level 3) should he adjusted (if necessary) based on the above bid analysis. It is recognized that actual bid cost data will not be available to revise the UNIFORMAT cost breakdown with 100 percent accuracy. The adjusted cost data shall be provided to GSA on completed GSA Forms 3474 ana 3473.

5. Historical data submittal. After completion of the above cost analysis work, the A-E shall complete GSA Form 3472, GSA Cost Data, to provide a synopsis of the project space plan, efficiency, scope, and basic design parameter measures for association with their cost. Fig. 6-5 illustrates this form.

6. Change order estimating. This will be the subject of a future separate issuance on cost and pricing. However, when such estimates are required for change order documents prepared by the A-E, the estimate for the changed work shall be at UNIFORMAT level 6 and shall be a separate labor and material breakdown.

Validation

Status: Final